

2002P09215WOUS  
Juergen MARTIN *et al*  
Appl. No.: 10/525,612

**REMARKS*****Claim Status***

After entry of this Amendment, Claims 10 – 19 are pending. By this Amendment, Claims 10 and 17 are amended. Claims 1 – 9 have been previously canceled. No new matter has been added.

Claims 10 and 17 are amended, as set forth in the above listing of claims, to improve clarity and/or to correct informalities.

***Specification***

The Examiner reminds Applicants of the proper language and format of an abstract and points out that legal phraseology such as “means” and “said” should be avoided.

Applicants submit herewith a new abstract on a separate page that replaces the previously filed abstract. In view of the new abstract, Applicants respectfully request the Examiner to accept the new abstract as complying with the requirements as to language and format.

***Claim Rejections – 35 U.S.C. § 103***

The Examiner rejects Claims 10 – 19 under 35 U.S.C. § 103(a) as being obvious over Chung (U.S. Patent No. 6,813,021) in view of Wein (U.S. Patent No. 7,106,443). Briefly, the Examiner asserts that Chung differs from independent Claims 10 and 19 in that Chung fails to teach a first and a second polarization controller. For that reason, the Examiner cites Wein as teaching optical signal-to-noise monitoring, and a first and a second polarization controller. The Examiner concludes that it would have been obvious to incorporate Wein’s polarization controllers in the system of Chung based on the motivation to provide rapid and accurate signal-to-noise ratio measuring. Applicants respectfully traverse for the following reasons.

Chung has been also published as US 2001/0052981, as identified on the cover page of Chung. This prior Chung publication is identified and discussed in the present specification in paragraph [0009], as follows:

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US 2001/0052981 A1 discloses a method for measuring the signal-to-noise ratio of an optical signal which constitutes a standard polarization nulling procedure, wherein the rotation angles between a  $\lambda/4$  plate and a polarizer are set as manipulated variables by means of a closed-loop control system. A major disadvantage is that a particular polarization state must first be set at the polarizer input. After the polarizer is adjusted, the minimum and maximum of the optical signal are determined from the measurement results. As a control system for  $360^\circ$  rotation of the polarizer is necessary for measuring the signal-to-noise ratios or to achieve one or two required polarization states, this method exhibits a disadvantageous measurement redundancy, making it a time-consuming process.

Chung likewise teaches a  $\lambda/4$  plate and a polarizer, wherein a particular polarization state must first be set at the polarizer input, and the minimum and maximum of the optical signal are determined from the measurement results. The Examiner's assertion that Chung fails to disclose a first polarization controller and a second controller is, therefore, correct.

Wein teaches extinguishing the signal component of a channel by transforming the input polarization state 207 of the signal component to a polarization state 206 through a polarization transformation 205 using a polarization controller 304 and a polarizer 308. (Col. 7, lines 24 – 29.) The polarization controller 304 may have two or more waveplates. (Col. 8, lines 48 – 50.) Wein, however, does not disclose details of a polarization controller 304 having two or more waveplates, in particular as to their applications.

Applicants respectfully submit that, absent unacceptable 20-20 hindsight, one of ordinary skill in the art would not consider applying Wein's teaching in Chung's system because Chung's  $\lambda/4$  plate and Wein's polarization controller 304 appear to serve the same purpose, i.e., to set a particular polarization state. Therefore, there is no motivation for the combination of Chung and Wein suggested by the Examiner.

Furthermore, even if one of ordinary skill in the art were to consider applying Wein's teaching in Chung's system, such a combination would still not lead to the subject matter of Claims 1 and 19 because Wein is silent as to particular uses or operations of two or more waveplates. More particularly, as to Claim 10, a combination of Chung and Wein does not disclose or suggest, e.g.:

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- recording and storing power spectra of the signal for a first defined setting of a first polarization-optical phase controller and for N settings of a second polarization-optical phase controller; and
- recording and storing the power spectra of the signal for (M-1) new settings of the first polarization-optical phase controller and for N settings in each case of the second polarization-optical phase controller.

Chung and Wein, alone or in combination, do not teach a method in which power spectra are determined in a particular sequence of settings of two polarization-optical phase controllers. Initially, the first polarization-optical phase controller is set to a first setting, and the second polarization-optical phase controller is set to N settings for the purpose of recording and storing power spectra of the signal for these settings. Then, the first polarization-optical phase controller is set to M-1 new settings, and the second polarization-optical phase controller is in each case set to N settings.

In view of the foregoing, Applicants respectfully submit that Chung in view of Wein does not disclose or suggest all features of Claim 10. Therefore, Chung in view of Wein does not render Claim 10 obvious. Applicants respectfully request the Examiner to reconsider the rejections under 35 U.S.C. § 103(a) and to pass Claim 10 to allowance.

Claims 11 – 18 depend from Claim 10. These dependent claims recite additional inventive features that are in combination with the features of Claim 10 not disclosed or suggested by the cited references. The above arguments regarding Claim 10 are repeated herewith. Each one of these dependent claims is, therefore, on its own patentable. Accordingly, Applicants respectfully request the Examiner to reconsider and to withdraw the instant rejections and to pass Claims 11 – 18 to allowance.

Independent Claim 19 defines a device for determining the signal-to-noise ratio of arbitrarily polarized optical signals of different wavelength which are combined to form a WDM signal according to a polarization nulling method, wherein, among other limitations, after passing through a first and a second polarization-optical phase controller the optical signal is injected into a linear polarizer with following optical spectrum analyzer. Similar to Claim 10, Claim 19 recites a polarization nulling method via a first

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and a second polarization-optical phase controller. Therefore, the above discussion regarding Claim 10 is repeated here.

Applicants respectfully submit that Chung in view of Wein does not disclose or suggest all features of Claim 19. Therefore, Chung in view of Wein does not render Claim 19 obvious. Applicants respectfully request the Examiner to reconsider the rejections under 35 U.S.C. § 103(a) and to pass Claim 19 to allowance.

#### Summary of response

Applicant has responded to the rejections in the August 29, 2007 Office Action by presenting the foregoing arguments. Applicant respectfully submits that Claims 1 – 6 are in condition for allowance. Applicant respectfully requests the Examiner to withdraw all rejections and to pass this application to the issue process.

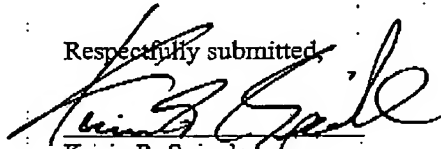
#### Request for telephone interview

The undersigned has made a good faith effort to respond to the objection and to all of the rejections raised in the Office Action so as to place the claims in condition for immediate allowance. Nevertheless, if any undeveloped issues remain or if any issues require clarification, the Examiner is respectfully requested to call the undersigned attorney of record at the telephone number listed below in order to resolve such issues promptly.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 502464 referencing attorney docket number 2002P09215WOUS. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Date: January 18, 2008

Respectfully submitted,

  
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